

introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;

crystallizing said semiconductor film by laser irradiation through said insulating film;

removing said insulating film by wet etching;

forming a gate insulating film on said semiconductor film;

forming a gate electrode on said gate insulating film, said gate electrode having tapered side edges; and

forming source and drain regions in said semiconductor film by ion doping through said gate insulating film.

18. (Amended) A method for fabricating a semiconductor device, comprising the steps of:

forming a semiconductor film comprising amorphous silicon on an insulating surface;

forming an insulating film on said semiconductor film;

introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;

crystallizing said semiconductor film by laser irradiation through said insulating film;

removing said insulating film by wet etching;

forming a gate insulating film on said semiconductor film;

forming a gate electrode on said gate insulating film, said gate electrode having tapered side edges; and

forming source and drain regions in said semiconductor film by ion doping.

23. (Amended) A method for fabricating a semiconductor device, comprising the steps of:

forming a semiconductor film comprising amorphous silicon on an insulating surface;

forming an insulating film on said semiconductor film;

introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;

crystallizing said semiconductor film by laser irradiation through said insulating film;

removing said insulating film by wet etching;

forming a gate insulating film on said semiconductor film;

forming a gate electrode comprising aluminum on said gate insulating film; and

forming source and drain regions in said semiconductor film by ion doping which is performed through said gate insulating film.

29. (Amended) A method for fabricating a thin film transistor of a pixel portion in a semiconductor device, comprising the steps of:

forming a semiconductor film comprising amorphous silicon on an insulating surface;

forming an insulating film on said semiconductor film;

introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;

crystallizing said semiconductor film by laser irradiation through said insulating film;

removing said insulating film by wet etching;

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forming a gate insulating film on said semiconductor film;
forming a gate electrode on said gate insulating film; and
forming source and drain regions in said semiconductor film by ion doping.

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34. (Amended) A method for fabricating a thin film transistor of a pixel portion in a semiconductor device, comprising the steps of:

- forming a semiconductor film on an insulating surface;
- forming an insulating film on said semiconductor film;
- introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;
- crystallizing said semiconductor film by laser irradiation through said insulating film;
- removing said insulating film by wet etching;
- forming a gate insulating film on said semiconductor film;
- forming a gate electrode on said gate insulating film; and
- forming source and drain regions in said semiconductor film by ion doping.

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37. (Amended) A method for fabricating a semiconductor device, comprising the steps of:

- forming a semiconductor film on an insulating surface;
- forming an insulating film on said semiconductor film;
- introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;
- crystallizing said semiconductor film by laser irradiation through said insulating film;

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removing said insulating film by wet etching;
forming a gate insulating film on said semiconductor film;
forming a gate electrode on said gate insulating film, said gate electrode having tapered side edges; and
forming source and drain regions in said semiconductor film by ion doping.

41. (Amended) A method for fabricating a semiconductor device, comprising the steps of:

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forming a semiconductor film on an insulating surface;
forming an insulating film on said semiconductor film;
introducing boron into at least a portion of said semiconductor film through said insulating film, said portion to become at least a channel region;
crystallizing said semiconductor film by laser irradiation through said insulating film;
removing said insulating film by wet etching;
forming a gate insulating film on said semiconductor film;
forming a gate electrode comprising aluminum on said gate insulating film;
forming source and drain regions in said semiconductor film by ion doping through said gate insulating film.

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53. (Amended) A method for fabricating a thin film transistor of a pixel portion in a semiconductor device, said semiconductor device having at least one thin film transistor comprising a semiconductor film formed adjacent to a gate electrode with a gate insulating film therebetween, said method comprising the steps of:

forming said semiconductor film over a substrate;

forming an insulating film on said semiconductor film;
introducing boron into at least a portion of said semiconductor film through
said insulating film, said portion becoming at least a channel region of said thin film
transistor;
crystallizing said semiconductor film by laser irradiation through said
insulating film;
removing said insulating film; and
introducing boron into said semiconductor film to form a source region and a
drain region,
wherein said gate insulating film is formed using TEOS.

55. (Amended) A method for fabricating a thin film transistor of a pixel
portion in a semiconductor device, said semiconductor device having at least one thin
film transistor comprising a semiconductor film formed adjacent to a gate electrode with
a gate insulating film therebetween, said method comprising the steps of:

forming said semiconductor film over a substrate;
forming an insulating film on said semiconductor film;
introducing boron into at least a portion of said semiconductor film through
said insulating film, said portion becoming at least a channel region of said thin film
transistor;
crystallizing said semiconductor film by laser irradiation through said
insulating film;
removing said insulating film;
forming source and drain regions in said semiconductor film by ion doping; and
introducing boron into said semiconductor film to form a source region and a

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drain region,

wherein said gate insulating film is formed using TEOS.

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58. (Amended) A method for fabricating in a thin film transistor of a pixel portion in a semiconductor device, said semiconductor device having at least one thin film transistor comprising a crystalline semiconductor film formed adjacent to a gate electrode with a gate insulating film therebetween, said method comprising the steps of:

forming a semiconductor film comprising amorphous silicon over a substrate;

forming an insulating film on said semiconductor film;

introducing boron into at least a portion of said semiconductor film through said insulating film, said portion becoming at least a channel region of said thin film transistor;

crystallizing said semiconductor film by laser irradiation through said insulating film;

removing said insulating film;

forming source and drain regions in the crystalline semiconductor film by ion doping; and

introducing boron into said semiconductor film to form a source region and a drain region,

wherein said gate insulating film is formed using TEOS.
